"How To" Instructions
Hawai'i DOT 2007 Traffic Station Maps

Aloha! This CD contains final traffic data for the 2007 Hawaii Department of Transportation (DOT) Traffic Data Program. Included on this CD is a fully interactive set of "geo-enabled" maps of the islands that allows you to access 2007 traffic data by area of interest. Each map allows for a user to click upon a traffic station, and then bring up its information, which consists of a station sketch, a photo of the station location, associated traffic data, and Geographic Information System (GIS) attributes. (Please note that not all traffic stations have a complete set of sketches, photos, and/or data files.) Please see Section II & Section III of this document for instructions on how to properly activate the links on each respective map to access all the associated traffic station information.

The 2007 traffic station maps have also been "geo-enabled". This means that the user of the map will get position information (Latitude & Longitude) wherever he/she moves the mouse over the map. The "geo-enabled" maps also allow for the end user to calculate length and area, locate a specific coordinate on the map, turn various map layers on or off, and integrate a GPS into the map. All of this new functionality is explained in detail in Section IV of this document.

I. DESCRIPTION OF CD CONTENTS & SOFTWARE

A. **SOFTWARE FORMAT**: All maps (PDF) have been published to Adobe Acrobat software. To properly view the maps and data, a user must have installed upon their computer Adobe Acrobat Reader 8.0 or greater. If you do not have this software installed on your computer, go to the "*Adobe_Reader8*" folder on this disk, and run the executable file (AdbeRdr80_en_US.exe) to install Adobe Acrobat Reader 8.0. Furthermore, to ensure that the map becomes "geo-enabled," make sure that the free GeoPDF toolbar for Adobe Acrobat is installed. If you do not have this software installed on your computer, go to the "*GeoPDF_Toolbar*" folder on this disk, and run the executable file (GeoPDFToolbar.exe) to install the toolbar which greatly enhances the usability of the map. (GeoPDF Toolbar is an optional installation.)

B. **CD CONTENT**: Here is the detailed information for the maps included on this CD:

Quantity	Description	Map Size	Map Scale
1	Hawaiian Islands Overview Map	44" x 34"	1:550,000
1	Kaua'i Traffic Station Map	44" x 34"	1:65,000
1	O'ahu Traffic Station Overview Map	44" x 34"	1:75,000
67	O'ahu Traffic Station Sheet Maps	11" x 17"	1:24,000
1	Moloka'i Traffic Station Map	34" x 22"	1:75,000
1	Lana'i Traffic Station Map	34" x 22"	1:50,000
1	Maui Traffic Station Map	44" x 34"	1:75,000
1	Big Island Traffic Station Map	34" x 44"	1:215,000

This CD also holds a "*links*" folder containing all of the traffic station data/sketches/photos, an "*Oahu_Map_Book*" folder containing all of the detailed O'ahu maps, and all of the island-wide Adobe Acrobat (PDF) maps described in the table above.

C. **CD AUTOMATION**: The CD is designed to automatically open the Hawaiian Islands Overview Map (island_trafficstation_overview.pdf) when inserted into a computer. The automation of opening the Hawaiian Islands Overview Map may be hindered by your company's firewall and/or

CD drive hardware settings. If your computer does not automatically open the Hawaiian Islands Overview Map, you can manually open the map document by following these simple steps:

1. Open Windows Explorer
2. Browse to the CD Drive (Ex: E:\)
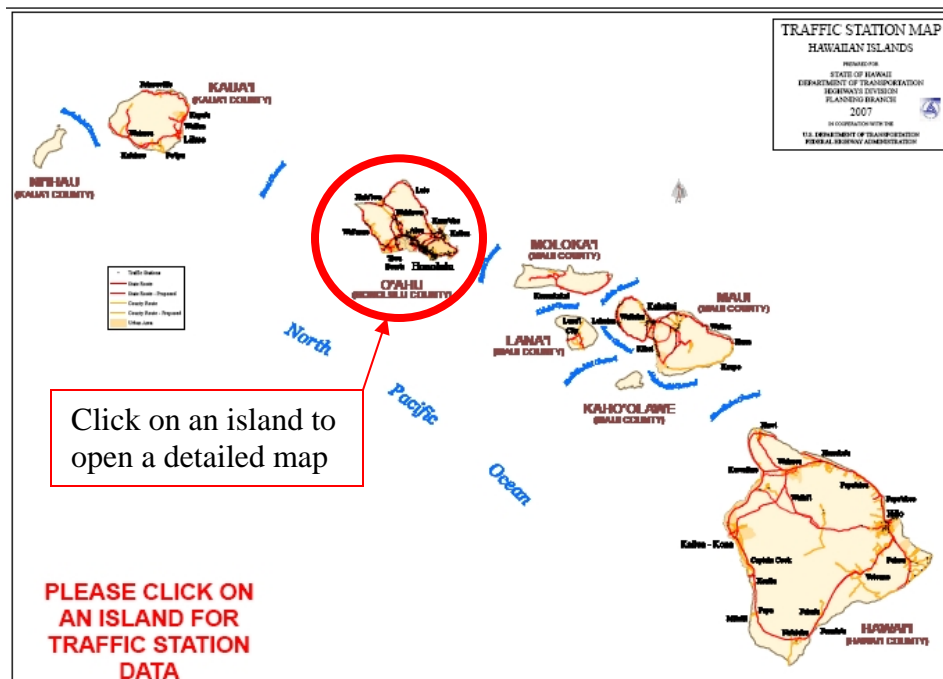3. Double click on the island_trafficstation_overview.pdf file.

D. **CD COPYING**: If you plan on copying the contents of this CD to a hard drive, make sure you copy all the files to the same folder, mimicking the structure that exists on this disk. Here is an example of how the contents of the CD should look if copied to a computer.

C:*DOT_2007*
> Adobe_Reader8 (FOLDER)
> GeoPDF_Toolbar (FOLDER)
> links (FOLDER)
> Oahu_Map_Book (67 MAP FILES & 1 FOLDER)
> autorun.inf (1 PROCESSING FILE)
> AutorunPro.exe (1 PROCESSING FILE)
> cd_instructions.pdf (1 READ-ME FILE)
> disclaimer.txt (1 READ-ME FILE)
> hawaii_trafficstations_34x44_GEOPDF.pdf (1 MAP FILE)
> island_trafficstation_overview_GEOPDF.pdf (1 MAP FILE)
> kauai_traffiicstation_44x34_GEOPDF.pdf (1 MAP FILE)
> lanai_trafficstation_34x22_GEOPDF.pdf (1 MAP FILE)
> maui_trafficstation_44x34_GEOPDF.pdf (1 MAP FILE)
> molokai_trafficstation_34x22_GEOPDF.pdf (1 MAP FILE)
> oahu_trafficstation_44x34_GEOPDF.pdf (1 MAP FILE)

II. INSTRUCTIONS ON HOW TO NAVIGATE BETWEEN MAPS

When you first insert the 2007 Traffic Station CD into your computer, the Hawaiian Islands Overview Map (shown in graphic below) will open automatically. If the map does not automatically open, see instructions in Section I.C on how to open the map manually.

TRAFFIC STATION MAP
HAWAIIAN ISLANDS

Click on an island to open a detailed map

PLEASE CLICK ON
AN ISLAND FOR
TRAFFIC STATION
DATA

To explore any of the islands contents, hover your cursor over one of the islands until your cursor changes from a

hand with all of the fingers extended to a hand with just the pointer finger extended. Once you have the pointer finger extended, you can click on the island, and a detailed island traffic station map will open in a separate Adobe Acrobat window.

NOTE: For the island of Oʻahu, a detailed grid will appear on top on the island traffic station map (shown in graphic below).

Click on a grid tile to open a detailed map
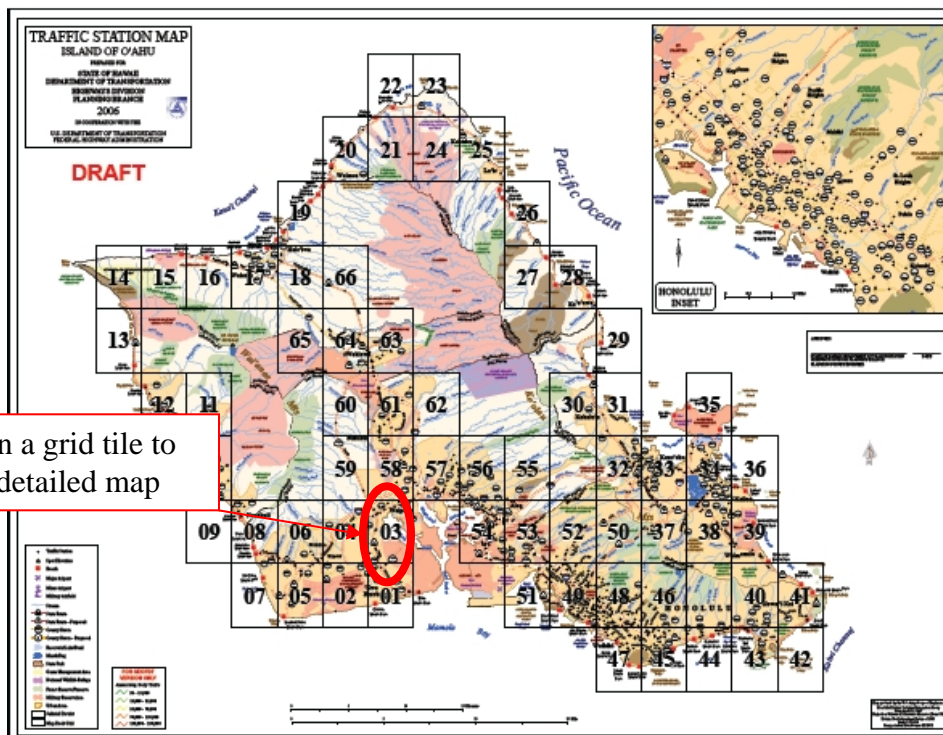
You can click on any of the grid tiles to view an in-depth traffic map for that particular tile. (This will automatically open a new detailed map in a separate Adobe Acrobat window [see graphic below for an example].)
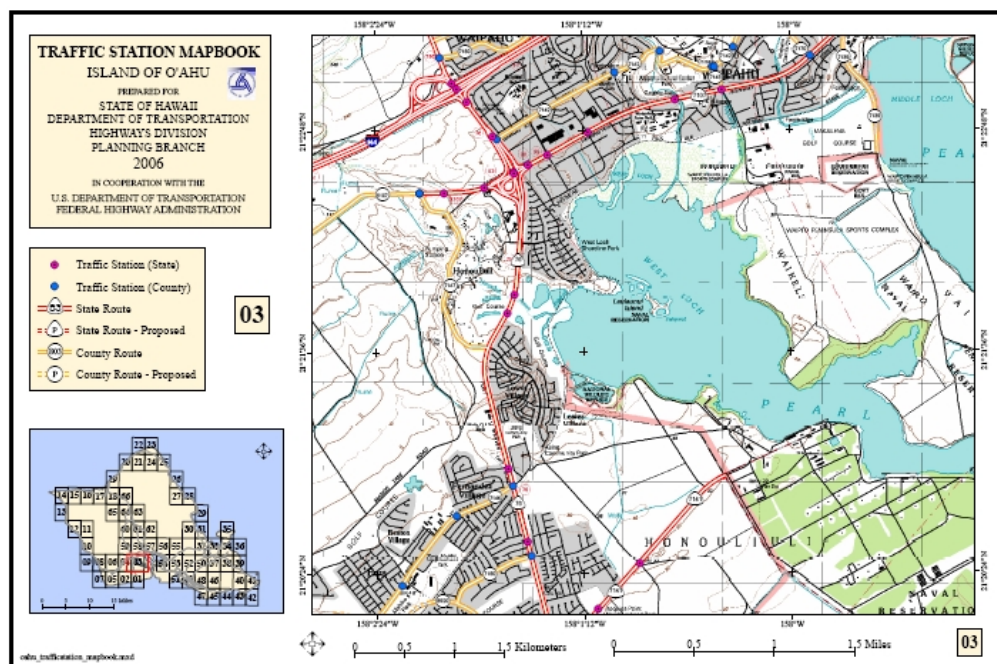
Once you have one of the detailed O'ahu traffic station maps open, you can quickly switch to another map by clicking on one of the grid tiles in the index map, which is found in the lower left-hand corner of each map sheet (see graphic below for example).

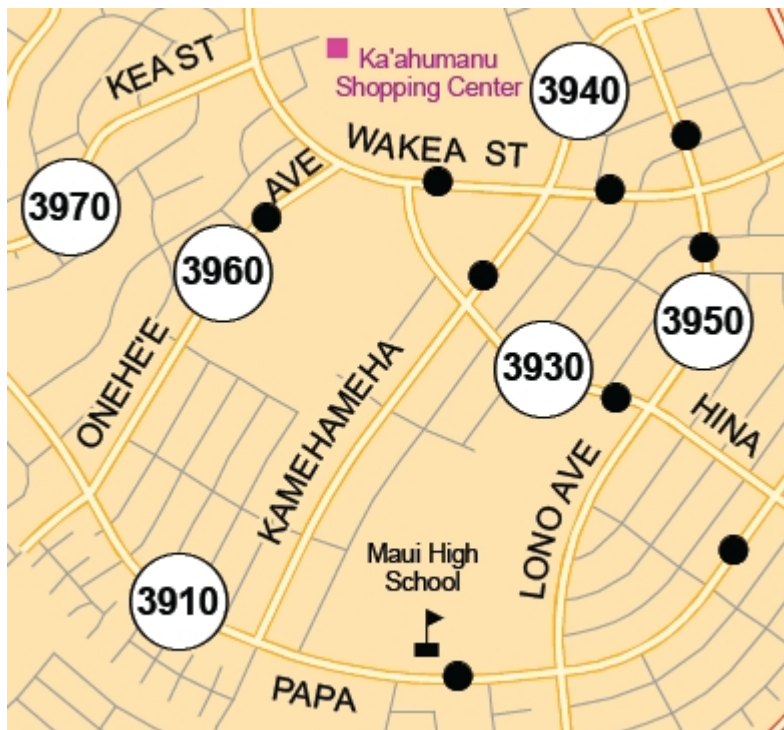Click on any grid tile within this index map to switch locations.
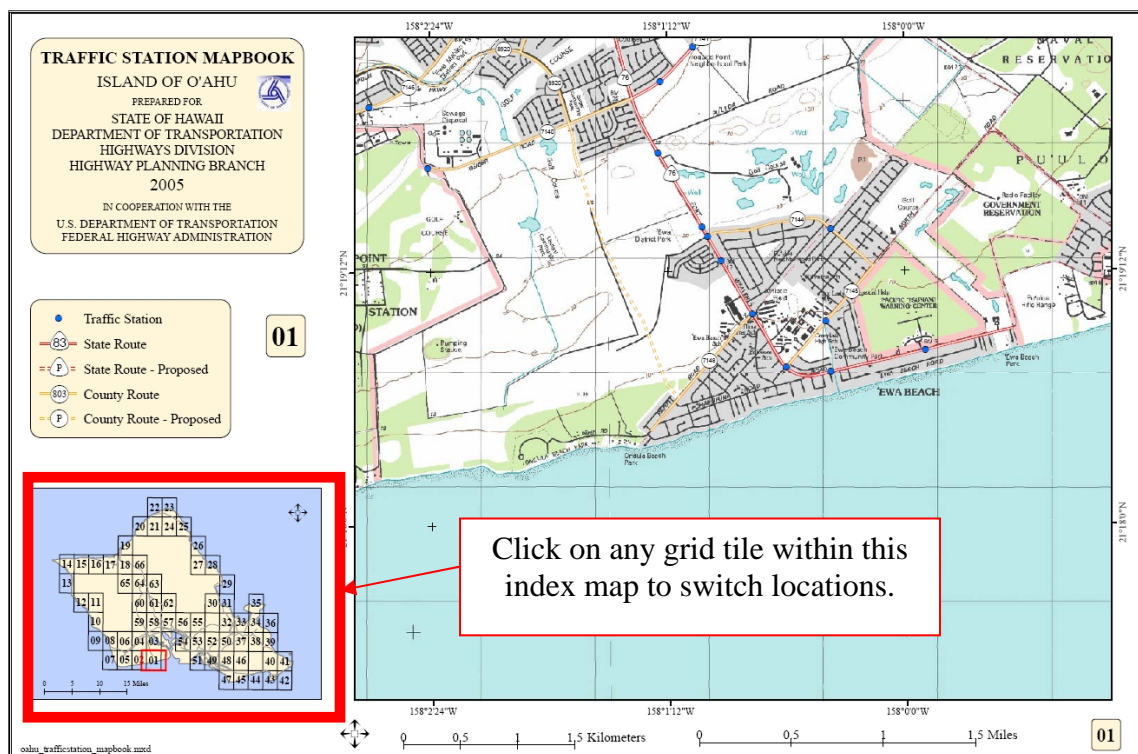
III. INSTRUCTIONS ON HOW TO ACCESS TRAFFIC STATION LINKS

Underlying each traffic station is a plethora of additional information. To access a particular traffic station's sketch, photo, or data, complete the following steps:

A. Hover your cursor over a traffic station "dot" on the map.

   NOTE: You may need to zoom in on the map to access traffic stations that are geographically close to each other. To Zoom In, please use the [icon] Marquee Zooming button found on the "Select & Zoom" toolbar. After you are ready to return to the full extent of the map, you can use the Zoom to Full Page button [icon].

B. Your cursor will change from a hand with all of the fingers extended [icon], to a hand with just the pointer finger extended [icon].

   NOTE: If the hand does not change to a pointer finger when hovering your cursor over a traffic station "dot", then that particular traffic station does not have any linked information available.

C. Once you have the pointer finger icon activated [icon], then click upon the traffic station "dot" and the linked information (if applicable) will open (see graphic below) in a separate Adobe Acrobat window.
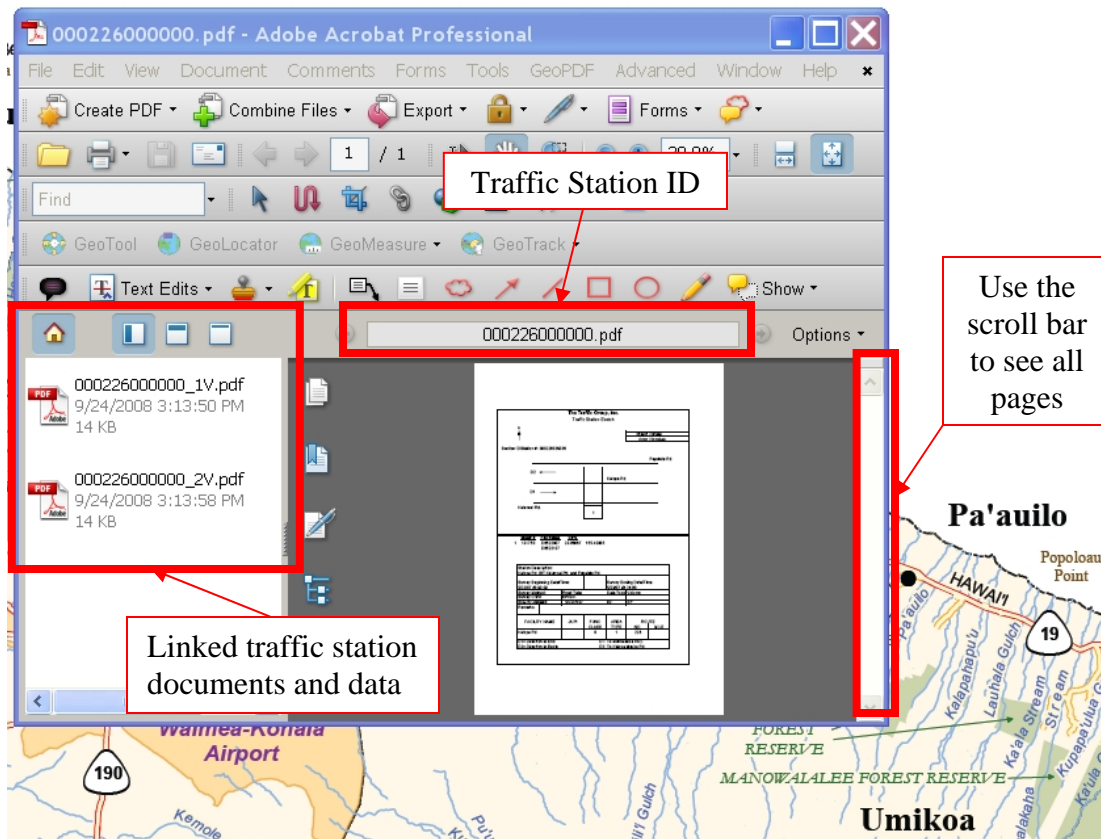
NOTE: Traffic station sketches, photos, and data have been combined into one Adobe Acrobat (PDF) file. You can access the various files in the linked PDF package by either scrolling down in Adobe Acrobat Reader (see graphic above) or clicking on one of the linked documents on the left-hand side of the screen (see graphic above).

NOTE: Traffic station identification numbers (ID) can be found at the top of the Adobe Acrobat file (see graphic above).

NOTE: Not all traffic stations have a sketch, photo, and/or data file.

IV. GEOPDF FUNCTIONALITY

The traffic station maps have been "geo-enabled" to enhance their usability and effectiveness. This means that the maps can now:

1) Display coordinates (Latitude/Longitude) wherever the mouse is moved;
2) Control how the map is displayed by selecting which layers are visible;
3) Perform common analysis processes such as calculating length and/or area;
4) Integrate a GPS into the map for live location information; and
5) Access traffic station Geographic Information System (GIS) attributes directly inside Adobe Acrobat.

Here is how the tools work.

A. Coordinate Display

In the lower right-hand corner of all maps (see graphic below) contained on this disk, a small yellow box is shown indicating the current Latitude and Longitude (or Military Grid Reference System [MGRS]) of your computer mouse pointer. Whenever you move your mouse, these coordinates will update to reflect where your mouse pointer is currently located on the map. This holds true in all locations on the map, except on insets where the larger map overrides the inset coordinates, or if you move your mouse pointer off the map and into the cartographic elements (legend, scale bar, north arrow, etc).

These coordinates update whenever you move your mouse.

Lon: 159.81172 W   Lat: 22.25872 N   MGRS:04O DK 16365
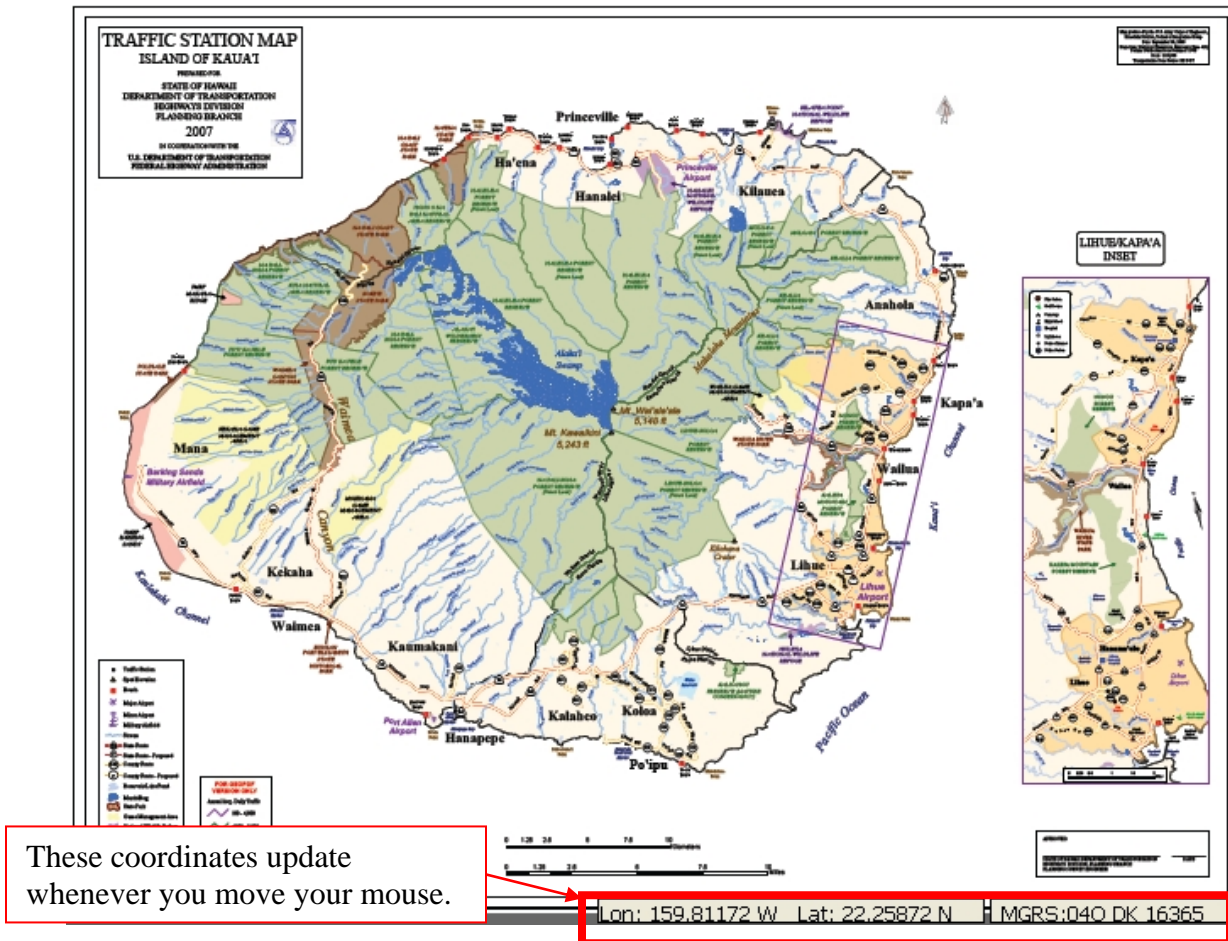
1) Locking the Coordinates Into Place

If at anytime you need to lock the mouse coordinates to a single location, this can be done by using the "GeoTool" button [GeoTool], which is located on the GeoPDF toolbar. (You can toggle the GeoPDF toolbar on/off by going to View > Toolbars > GeoPDF inside Adobe Acrobat).

Simply left click on the "GeoTool" button [GeoTool] (mouse pointer will turn into a crosshair), and then click on the map location where you would like the coordinates to be locked into place. The coordinates will become locked once you see a large X on the map and the coordinates no longer update when you move your mouse pointer around on the map. To unlock the coordinates, just left click again anywhere on the map. This tool is very useful when you are trying to write down coordinates and move your mouse at the same time.

2) Placing a Known Coordinate on the Map

At some point, you may need to identify a known location on the map. For example, a co-worker might provide you with the Latitude and Longitude of a new traffic station, and you may want to see where it is located on the island. You can use the "GeoLocator" button

, which is found on the GeoPDF toolbar, to perform this task. (You can toggle the GeoPDF toolbar on/off by going to View > Toolbars > GeoPDF inside of Adobe Acrobat.) To use

this tool, go to the GeoPDF toolbar and left click on the "GeoLocator" button . This will open the "Locate" tool, which is shown in the graphic below.
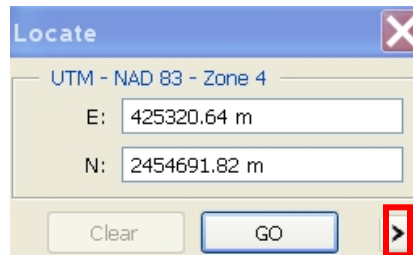

The default coordinate system displayed in the "Locate" tool is Universal Transverse Mercator (UTM) Zone 4 North (meters), North American Datum of 1983 (NAD83) coordinates. (The Big Island map will default to Zone 5 North instead of Zone 4 North.) If you prefer to input

coordinates in Latitude/Longitude, then click on the button (highlighted in the above graphic) to set the project parameters (see graphic below for assistance).
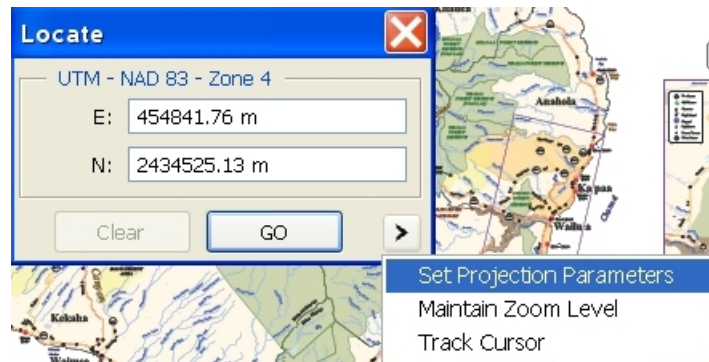

This will bring up the "GeoRegister" tool (shown in graphic below). Set your projection to **Latitude/Longitude** and your datum to the **North American Datum of 1983 (NAD83)**. Left Click the **OK** button in the lower right-hand corner of the "GeoRegister" tool to accept the changes.
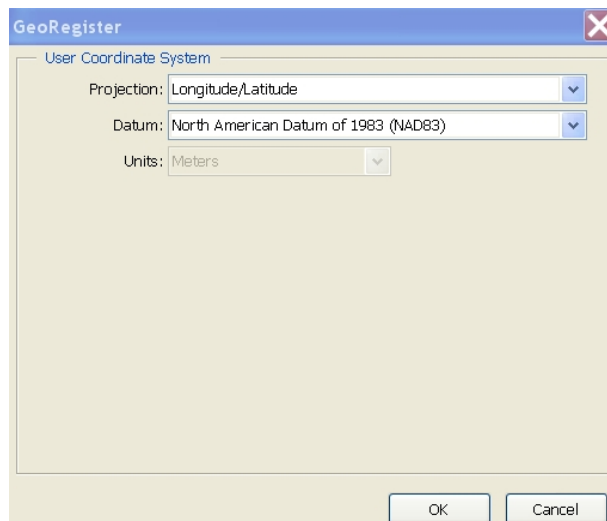
After you have your projection parameters set, you can type in the Longitude and Latitude and then click **GO** on the "Locate" tool (see graphic below for assistance). (Please do not forget to indicate if your coordinate is North [N], South [S], East [E], or West [W].)
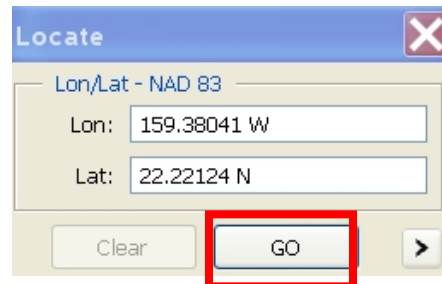

The result will be a large X on the map, and the map will also automatically zoom to your coordinate.

B. Controlling The Map Layers

A GeoPDF map not only allows you to explore the active coordinates of the contained features, but it also allows you to control which map layers are visible. To interact with a GeoPDF's map layers, you need to left click the "Layers" button found in Adobe Acrobat. The "Layers" button is located on

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the left-hand side of the map, and it looks like this: . Once you click on the "Layers" button, the map will update with a list of layers on the left-hand side of the screen (see graphic below for more details).
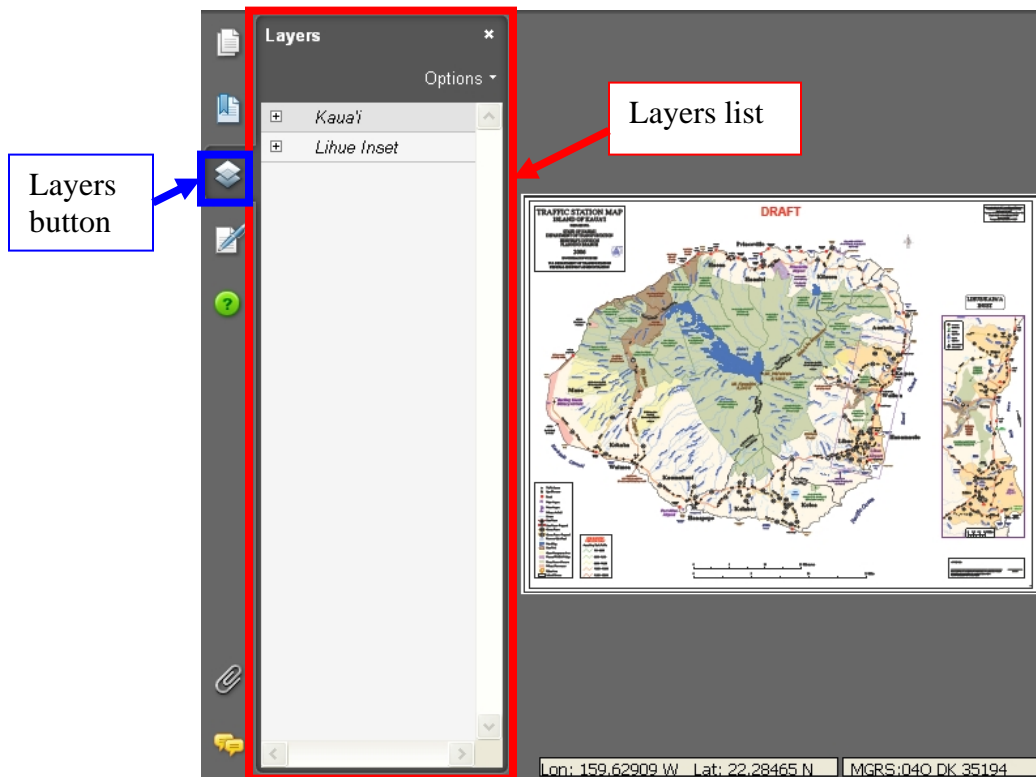

To actually interact with the map layers, you will need to expand one of the options listed. In the example above, two options are available: 1) Kauaʻi and 2) Lihue Inset. The Kauaʻi option allows you to control layers on the large Kauaʻi map. The Lihue Inset option allows you to control layers in the smaller Lihue inset map (which is located on the right-hand side of the GeoPDF document).

In this example, I will expand the Kauaʻi option (see graphic below for more details) by clicking the symbol next to the word Kauaʻi. This expands the list showing me all of the available layers for the large Kauaʻi map.

Next to each available layer is a symbol. By left clicking the symbol, I can toggle a layer on the map on or off. In the example below, I am toggling off the "Annotation" layer. Notice that all the annotation (labels) on the map is no longer visible (see graphic below for more details).



Checked off, so no labels are on the map.
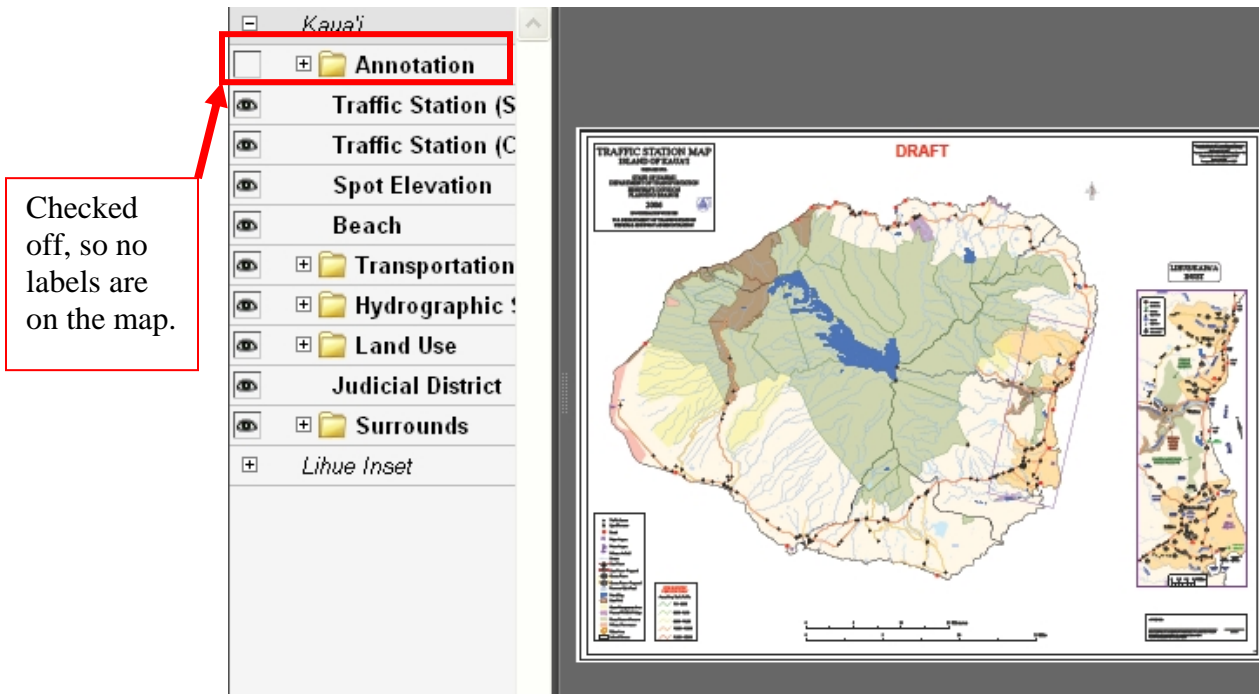
I can perform this process with any of the layers listed. I can also open the folder icons next to some of the layers to control subsets of those particular features. For example, if I expand the Transportation layer, I see many subsets of the Transportation feature (Airports, State Roads, County Roads, etc) to which I can control by toggling on or off (see graphic below for more details).

Transportation Subsets
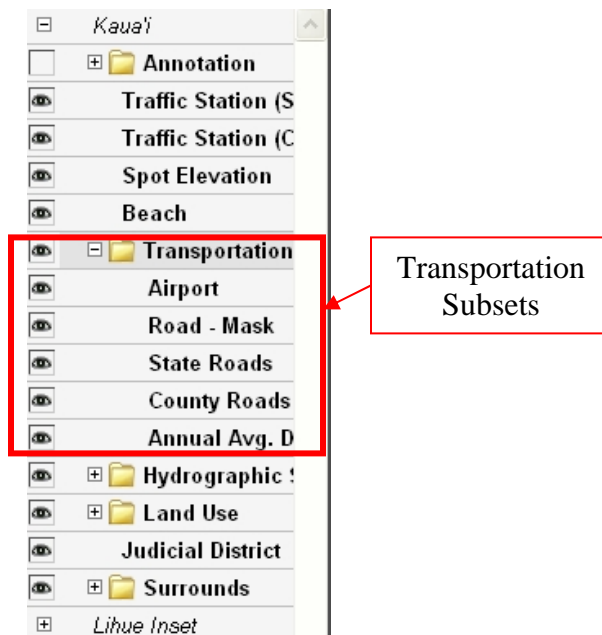
In this case, I will turn off the "Road-Mask", "State Roads", and "County Roads" layers to reveal the Annual Avg. Daily Traffic rates (see graphic below). Now, the roads are symbolized on the map by

Annual Average Daily traffic rates. The traffic rates are distinguished by color, and each island has as a separate legend explaining which rates are associated with what color on the map.
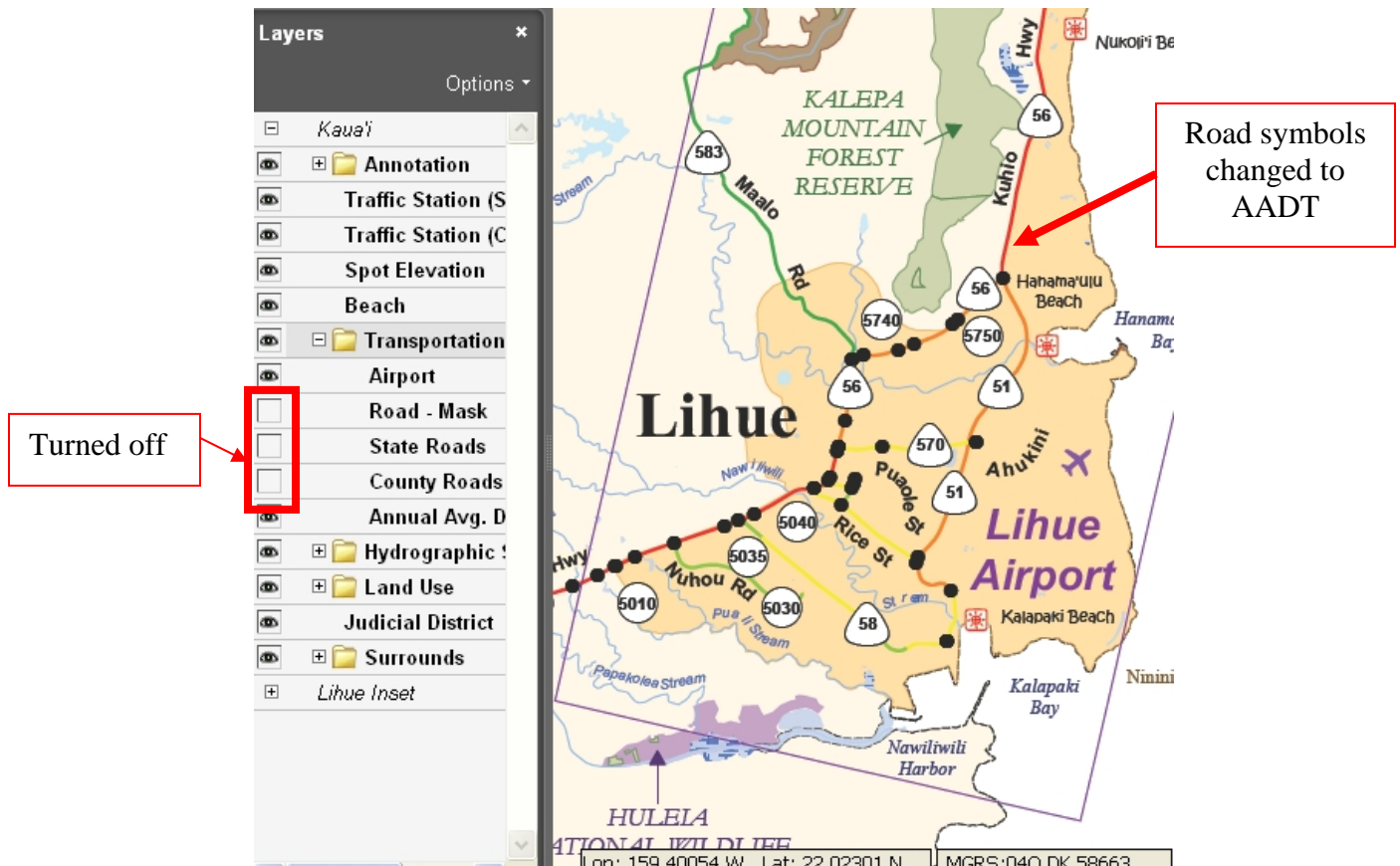

C. Calculating Length And Area

The new GeoPDF documents allow you to compute length and area inside an Adobe Acrobat map file. This can be performed by activating the GeoMeasure button ![GeoMeasure] on the GeoPDF Toolbar. (You can toggle the GeoPDF toolbar on/off by going to View > Toolbars > GeoPDF inside Adobe Acrobat).

1) Calculating Length

To calculate length on a location in the map, go to the GeoMeasure button ![GeoMeasure] on the GeoPDF toolbar and select **Measure Length** by left clicking on the down arrow to the right of the word "GeoMeasure" (see graphic below for more details).
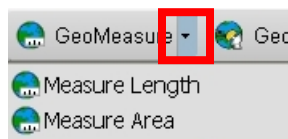
This will display the Measure Length tool on the screen (see graphic below for more details).
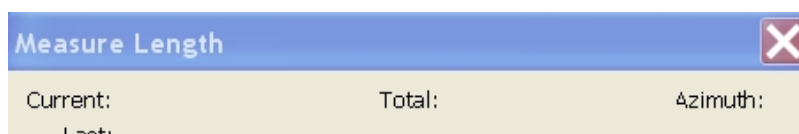
To use the tool, single left click on the map where you would like to start measuring. This places a small square on the map indicating your starting point. Now, single left click along the line you would like to measure until you reach the end. When you reach the end of the line you would like to measure, double left click to end the line. The results of your measurement will display in the Measure Length tool (see graphic below for more details).
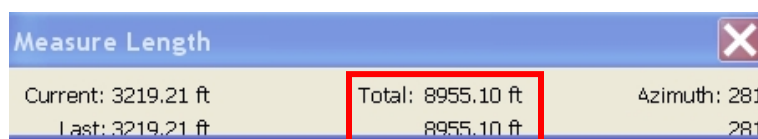
2) Calculating Area

To calculate area on the map, go to the GeoMeasure button on the GeoPDF toolbar and select **Measure Area** by left clicking on the down arrow to the right of the word "GeoMeasure" (see graphic below for more details).
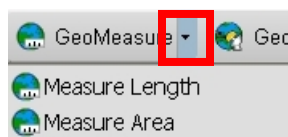
This will display the Measure Area tool on the screen (see graphic below for more details).
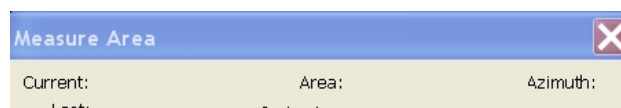
To use the tool, single left click on the map where you would like to start measuring an area. This will add a small square on the map indicating your starting point. Now, single left click along the edge of the area until you near the end. When you near the end, your cursor will turn into a crosshair with a circle next to it. Single left click as the crosshair with a circle next to it is displayed to end the area. The results of your measurement will display in the Measure Area tool (see graphic below for more details).

D. GPS Integration

The GeoPDF toolbar also allows for live GPS integration into the map. For example, if you had one of the Hawai'i Traffic Station GeoPDF maps loaded onto a laptop that was connected to a GPS, you could track your position on the map live by using the GeoTrack button on the GeoPDF toolbar. (You can toggle the GeoPDF toolbar on/off by going to View > Toolbars > GeoPDF inside Adobe Acrobat).
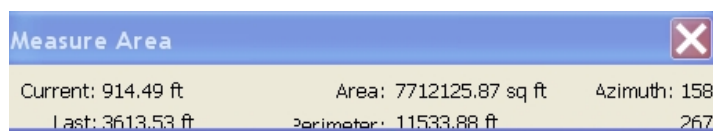
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To use this tool, you must do the following:
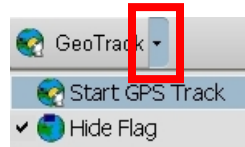
1. Load a GeoPDF document onto a laptop
2. Connect a GPS receiver to your laptop and ensure that it is working properly
3. Open the GeoPDF document in Adobe Acrobat 8.x
4. Turn on the GeoPDF Toolbar by going to View > Toolbars> GeoPDF
5. Single left click on the small down arrow next to the GeoTrack button on the GeoPDF toolbar

6. Select **Start GPS Track**
7. An icon will appear on the map that indicates your position. As you move your position, the icon will also move on the map updating in real time. (If you want to hide the icon on the map for any reason select **Hide Flag** from the GeoTrack button on the GeoPDF toolbar).

E. GIS Attribute Data

Traffic station data that originally resided in a Geographic Information System (GIS), can now be accessed through the GeoPDF traffic station map. To access the data, perform the following steps:

1. Open one of the GeoPDF island traffic station maps in Adobe Acrobat 8.x.
2. Select the "Object Data Tool" by going to Tools > Object Data > Object Data Tool (see graphic below).
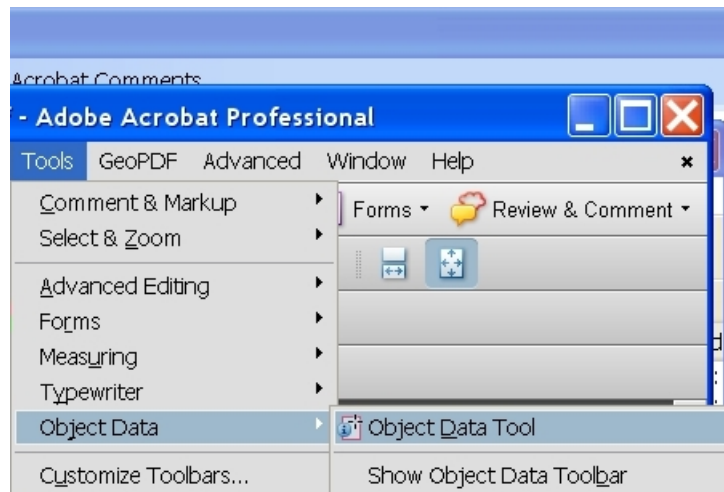
3. Your cursor will turn to a crosshair when hovered over a traffic station location.
4. Left click on one of the traffic station locations.
5. The traffic station attribute data will appear in a box in the lower left-hand side of the Adobe document (see graphic below).

Model Tree   ×

Traffic Station (County) : 00052100000(
Traffic Station (County) : 00052100050(
Traffic Station (County) : 00053200166(
Traffic Station (County) : 0005620005
Traffic Station (State) : 300

You can sort through all of the traffic stations on the map here

Options ▾

<No 3D Model Selected>

Property	Value
FID	3
OBJECTID	130
Section_ID	000562000510
Descriptio	KILAUEA RD-KENEKE ST TO LI
Own	COUNTY
Retake_Req	0
Found_	1
ECO_File	X
Pictures	X
Sketches	X
Excel_File	X
PRN_File	X
Type	Class
Directions	2
Date_	1/23/2007
Island	Kauai

Traffic station GIS data will appear in this box

TRAFFIC STATION MAP
ISLAND OF KAUA'I
PREPARED FOR
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLANNING BRANCH
2007
IN COOPERATION WITH THE

Click on a traffic station location with the "Object Data Tool"

V. CONCLUSIONS

Should you have any questions and/or concerns about the contents of this CD, please contact the Hawai'i Department of Transportation, Highways Planning Survey Section at the following address:

> State of Hawai'i Department of Transportation
> Highways Division, Planning Branch
> 869 Punchbowl Street, Suite 301
> Honolulu, Hawai'i 96813
> Phone: (808) 587-1831
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